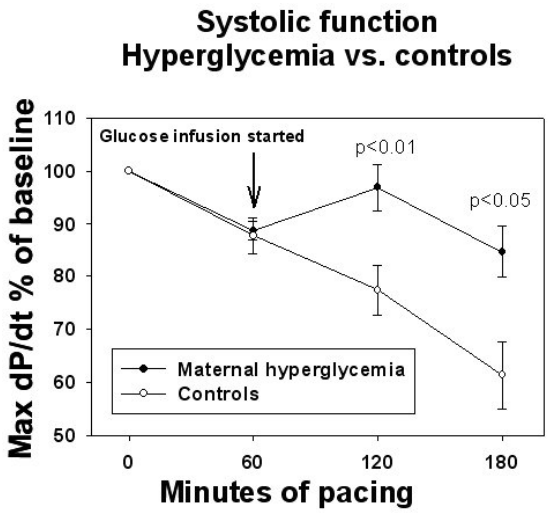
group; dP/dt_{max} was 999±253 mmHg/s at 120 min (p=0.016) and 854±209 mmHg/s at 180 min (p=0.054).
Conclusion: Induced maternal hyperglycemia improves fetal cardiac function during fetal tachycardia.



1057-201 Fetal Aortic Stenosis With Apex-Forming Left Ventricle at Time of Diagnosis: Determinants of Biventricular Repair

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Background: Aortic stenosis (AS) may result in impaired and preserved growth of the left heart. Potential for biventricular repair is critical in counseling and management.
Objectives: To assess the value of markers in predicting suitability for biventricular (BV) versus single ventricular (SV) repair in fetal AS.
Methods: Review of all cases of fetal AS, diagnosed at our center since 1995. Inclusion criteria were 1) apex-forming left ventricle (LV) at time of diagnosis, 2) intact ventricular septum, and 3) serial follow-up studies to birth. The following parameters were assessed at diagnosis: Ventricular dimensions and systolic functions, orientation of aortic and foraminal flows, and presence/absence of endocardial fibroelastosis. Analysis of the pulmonary venous flow to assess diastolic function included peak velocity of reversed flow during atrial systole (PVA), integrated time velocity ratio of early diastolic to ventricular systolic forward flow (D/S), and the ratio of reversed to forward pulmonary venous flow (A/(S+D)). Depending on the type of postnatal intervention, 2 patient groups were created and the parameters compared.
Results. The baseline characteristics of 16 fetuses included in the study are shown.

	SV Repair (n = 8)	BV Repair (n = 8)	P-Values
Age at diagnosis	21.4±4.3 weeks	21.8± 5.7 weeks	NS
Increase in LV diameter	5/8 (63%)	4/8 (50%)	NS
Endocardial fibroelastosis	7/8 (88%)	4/8 (50%)	NS
LV shortening fraction	4.0±8.1 %	18.2±17.8 %	0.04
Retrograde aortic flow	3/8 (38%)	0/8 (0%)	NS
Left-right atrial shunting	8/8 (100%)	5/8 (63%)	NS
PVA reversal	35.4±9.8 cm/s	10.1±0.5 cm/s	0.0001
D/S TVI	0.3±0.3	1.1±0.5	0.007
A/(S+D) TVI	0.52±0.24	0.09±0.07	0.003

Conclusion: In AS with apex-forming LV at time of diagnosis functional indices (LV shortening; pulmonary vein flow) provide useful information in predicting left ventricular growth potential and suitability for biventricular repair.

1057-202 Changing Indications for Fetal Echocardiography in a University Center Population

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Background
Technical advances and obstetrical education have greatly increased the use of Fetal Echocardiography (FE) over the past 10 years. Earlier studies showed that the major indications for FE included a family history of congenital heart disease (CHD), maternal diabetes and arrythmia. We hypothesized that the increased utilization of FE is associated with a change in indications and yield of FE.
Methods
We reviewed 300 consecutive FE performed at Stanford University between 12/2002 and 8/2003. Major anomaly was defined as that affecting prognosis.
Chromosomal anomaly was defined either as suspected (based on ultrasound (US) findings) or proven (chromosomal analysis).
Results
Indications for FE and their yield are presented in the table.

Indication	No. of FE	% of FE	No. of Major anomalies	No. of Minor anomalies	Yield (%)
Family history of CHD*	68	23	1	2	4
Maternal diabetes	55	18	2	2	7
Abnormal obstetrical US (Suspicious for CHD)	46	15	15	1	35
Arrythmia	35	12	2	3	14
Extracardiac congenital anomalies	29	9	3	0	10
SLE/ +SSA/SSB	21	7	1	2	14
Chromosomal anomaly	18	6	5	4	50
Teratogen Exposure	14	5	0	0	0
Other	9	3	4	1	5
Advanced maternal age	4	1	0	0	0
Not ascertained	1	0.3	0	0	0
Total	300	99.3	33	15	16

Mean maternal age was 31±6 (range 16-44) years. Of 7 cases with increased nuchal thickening, 1 (14%), showed PA/IVS. No cardiac anomalies were found in the presence of an abnormal umbilical cord.
Conclusions
Indications for FE have changed over the last 10 years. An obstetrical US suspicious for CHD has become a prominent indication for FE, indicating an increased awareness of cardiac anomalies by obstetricians. This indication, together with chromosomal anomalies, accounts for a large percentage of positive FE. Thus, the yield of FE depends to a large extent on the skills of the obstetrician. Common indications that continue to have relatively low yield include maternal diabetes, arrhythmia and especially a family history of CHD and exposure to a teratogen.

1057-203 Ventricular Function in Fetal Congestive Heart Failure and Predictors of Perinatal Outcome

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Background: Although the types of primary cardiac lesions associated with fetal congestive heart failure (CHF) are well recognized, there is a paucity of data which defines the associated abnormalities of ventricular function and predictors of outcome. We sought to determine the specific abnormalities of ventricular function and to identify ventricular functional parameters that may assist in predicting outcome in a large cohort of affected fetuses. **Methods:** We reviewed the initial fetal echocardiograms (mean age 25.2±5.2 weeks) and clinical histories of 87 fetuses with CHF due to structural heart disease (n=41), primary dysrhythmias (n=22) or primary myocardial disease (n=24). LV and RV shortening fraction (SF), and Tei indices were assessed where possible and compared to previously published normal data. Diastolic dysfunction was considered to be present when 1 or more of the following indices were abnormal: A/E ratio, deceleration time, LV-IVRT, IVC, DV and UV flow pattern. In continued pregnancies with known outcome, parameters were compared between those with fetal or neonatal demise (n=38) versus survivors (n=26). **Results:** In the 87 cases of CHF, LV and RV SF were abnormal in 49.4% and 64.9%, respectively and significantly decreased compared to normal (LV=27.4±11.7, RV=23.8±11.8,p<0.05). LV and RV Tei-indices were abnormal in 53.1% and 58.8%, respectively and overall were significantly increased (LV=0.64±0.42, p<0.01; RV=0.65±0.45, p<0.01). RV SF was significantly lower than the LV (p=0.02) but the RV and LV Tei-indices were not different. A/E ratio of both ventricles did not differ significantly from normal (LV=1.31±0.48, RV=1.46±0.62), and RV and LV A/E ratios were not different. Diastolic dysfunction was present in 39 of 50 cases with CHF assessed. Of all the functional parameters compared, only LV SF was significantly decreased in fetuses with fetal or neonatal demise versus survivors (28.4±10.5 vs 21.5±12.3, respectively, p=0.03). **Conclusion:** In fetuses with CHF, RV and LV systolic dysfunction is present in 50-60% and diastolic dysfunction in 78%. While RV systolic dysfunction is more common in CHF, the presence of LV systolic dysfunction may further contribute to outcome.

1057-204 Outcome Following Prenatal Identification of Structural Heart Disease: A Seven-Year Experience

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Background: This study evaluates outcome in a series of consecutive patients who were diagnosed prenatally with structural heart defects (SHD) and identifies factors associated with mortality in this cohort.
Methods: Fetal echo reports at a single institution from August 1995 through November 2002 were reviewed. The following outcomes for fetuses with SHD were evaluated: families opting for no active management, hospital survival following surgery at initial admission, and survival at most recent follow up. Variables evaluated for potential association with these outcomes included cardiac diagnosis, gestational age at diagnosis and at birth, gender, birth weight, extracardiac and/or chromosomal anomalies, ethnicity, insurance status (a marker of socioeconomic status), surgery at initial admission, and univentricular versus biventricular management pathway. Univariate and multivariate analysis were performed.
Results: We identified 168 fetuses with SHD, of whom 126 (75%) chose active treatment.